SERVICE MANUAL & PARTS LIST

AEU-14CF EXPEDITION
EMERGENCY FIELD DENTAL UNIT

Aseptico®

P.O. Box 1548 • Woodinville, WA 98072-1548
(800) 426-5913 • (425) 487-3157 • Fax: 425-487-2608
www.aseptico.com • info@aseptico.com

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GENERAL SERVICE INFORMATION

This service and parts manual offers information and parts lists not available in the AEU-14CF Operation and Maintenance Instruction Manual. It will help you better understand the operation of the AEU-14CF Expedition Emergency Field Dental Unit, thereby reducing service time. A Schematic Diagram Set includes part drawings and schematic diagrams which show components in their actual places in the unit relative to one another. A plumbing schematic is provided with water lines indicated in blue. Plumbing parts are called out by Aseptico part number in the assembly drawings. Electrical schematics are provided for the chassis and battery pack with wires color coded. Electrical parts are called out by Aseptico part number in the assembly drawings. Parts are listed and referenced to Figures with callouts in the Parts List. Use the information in the Parts List when ordering replacement parts.

Inspection & Operation Verification

To verify that the AEU-14CF unit is functioning properly, first follow the set-up procedure in the Operation & Maintenance manual. The system is designed to run off of multiple power systems, so it is best to isolate systems during diagnostics. First, plug the system into a 120V/220V power source. The system is auto switching but the fuses should be changed for the appropriate voltage, which is listed on the silkscreen above the receptacle. Turn the power On/Off switch 'On' and the panel should light up and the compressor pump should fill the air and water reservoirs. If the water reservoir is empty, the pump will take longer to charge the system. With the compressor pump engaged, the system should pressurize to approximately 22 PSI, as indicated on the pressure gauge. When the compressor pump is first initialized, a three-way valve allows for the pump not to start against a pressure head. If the unit fails to show any pressure on the gauge, the three-way valve is usually at fault. Inspect the unit for air and water leaks. If the pump fails to shut off and the pressure gauge shows some pressure, then there is a leak present. The electronics have been coated to prevent shock. It is possible to detect air leaks with a tube or a stethoscope, but because of the low pressure, they are hard to detect in this manner. It is better to use the plumbing schematic and isolate the problem by pinching off the lines with clamps, such as a pair of hemostats. If an air leak is not detected on the lines or fittings, check the bottles for tightness and the condition of the seals. To check the three-way syringe, depress the air and water buttons individually and then both buttons together for spray. The spray will be less than a normal dental system, due to the lower pressure of the system. Inspect the water filter on the water pick-up tube. The water filter requires replacement if it becomes clogged and restricts water flow. The compressor pump has a 90 PPI filter on the underside of the chassis that requires replacement if it becomes clogged and restricts air flow.

To check the functions of the dental motor and unit, attach motor and foot pedal as described in the Operations Manual. Push the buttons marked "Fiber Optic Light" and "Water" so that the LEDs are on. Depress the foot pedal and ensure that handpiece light comes on (you might have to depress the positive[+] button until light is present) and that water comes out of the handpiece. Adjust the water flow with the coolant adjustment knob on the unit. If light fails to come on, first check the bulb in the motor. If bulb is okay, then work your way back through the connectors. If water fails to come out of the handpiece, check the two-way valve. If the motor fails to operate, check the connector pins on the motor and the foot pedal. If the motor fails to operate from the foot pedal, then activate the button marked "Manual". If the motor comes on, the problem is in the foot pedal. Check reverse mode by pressing the "Reverse" button, and check the motor speed by pressing the positive[+] and negative[-] buttons.

Remove the AC power cable and attach the vehicle battery cable to the chassis and either a 12V or 24V battery system. Follow the setup procedure in the Operation Manual. Turn the battery on/off switch on and the unit should light up. If the unit fails to light up, remove the chassis as described later in this manual (refer to page 5) and check the 15 amp fuse coming from the vehicle receptacle on the inside of the unit .

To check the operation from the battery packs, remove other sources of power. Attach the battery pack cable from a battery pack to the unit. Turn the battery on/off switch on and the unit should light up and show the charge level of the battery pack. If the unit fails to come on, check the connections from the battery pack to the unit.

To check the operation of the charging system, leave the battery pack hooked up to the unit and apply either 120V/220V or 12V/24V vehicle power to the unit. The unit will take power from the higher source. If 120V/220V power is applied, the power on/off switch must be turned on to check the charging. If power is coming from 12V/24V battery, then only the battery switch needs to be on. Press the "Charge" button on the unit and ensure that the LED lights up.

The above procedures describe basic inspection and verification of the AEU-14CF system. If the unit still does not perform as required, further diagnosis of components in the system may require service. Use the Trouble Shooting section as a guide to symptoms and appropriate procedures to fix various problems.

Cleaning and Lubrication

When servicing the AEU-14CF Emergency Field Dental Unit, the parts of any component disassembled should be thoroughly cleaned and inspected before reassembly. A hot detergent solution is an effective cleaner on all non-electrical parts. Flush all non-electrical parts with clear, hot water. Abrasive cleaners have the potential to damage surface finishes and should be avoided. Any wiping should be done with a soft lint-free cloth.

Electrical parts should be cleaned with an appropriate electrical parts cleaner or air.

Use a silicone base lubricating grease, such as Dow Corning No. 103 to lubricate O-rings and seals in the system. Before performing any reassembly of parts that contain O-rings or seals, apply a light coat of silicone grease. This will make installation easier and prevent the O-rings or seals from being damaged.

WATER LINES - Disinfect the water lines weekly. Prepare a 1:10 bleach solution (1 part household bleach to 10 parts water). Remove water reservoir and discard residual water. Replace empty water supply tank and air purge all waterlines. Fill water supply tank with bleach solution. Run bleach solution through all lines. Allow bleach solution to stand in lines for 10 minutes. Remove water supply tank and discard bleach. Flush water supply tank and all lines thoroughly with clean water. Air purge and leave lines dry until next clinical use.

ESD PRECAUTIONS

The following electrostatic controls must be used when working on this unit:

ESD Training and Standards:
Employees handling electronic sub-assemblies and ESD sensitive components are expected to be trained. Training should be based on IPC-A-610 or equivalent ESD standard ANSI/ESD-S-20-20 – Protection of Electrical and Electronic Parts, Assemblies and Equipment.

ESD Static Controlled Area:
Areas that are designated for handling and working on electronic sub-assemblies or their components should be marked off with signs indicating the area where ESD controls are to be enforced. These areas are to be kept clear from persons that are not trained to prevent ESD damage from occurring.

ESD Environment:
The work area is to be free of all static generating materials, such as plastic containers, water bottles, plastic bags, plastic objects, such as plastic pens, heat guns (unless made for the ESD environment).

ESD Jackets:
Clothing should be non-static generating (cotton).

Static generating clothing (e.g. wool, acrylic, nylon) must be covered with an ESD jacket that is buttoned closed.

Optional gloves:
Nitrile gloves may be used to cover the hands when working, but are not required.

Seating:
ESD Chairs should be used in place of static generating chairs (e.g. modern office seating use static generating materials).

Storage and packaging:
All circuit boards and components are to be stored on or in static dissipative or static shielding material, throughout shipping and storage.

ESD Wrist Strap and Mat Routine Checks:
The wrist strap should be checked daily using an ESD wrist strap testing station. See chart below.

ESD mats should be checked at least quarterly.

Reading from Operator Through	Maximum Tolerable Resistance	Maximum Acceptable Discharge Time
Wrist strap to ground	100 megohms	Less than 0.1 sec.
Table mat to ground	1000 megaohms	Less than 1 sec.

DISASSEMBLY

NOTE: This system consists of two main assemblies: the chassis assembly and the battery packs. All operating functions of the system are encased in the chassis and can be operated outside of the unit case if proper precautions against electrical shock are taken.

CHASSIS REMOVAL

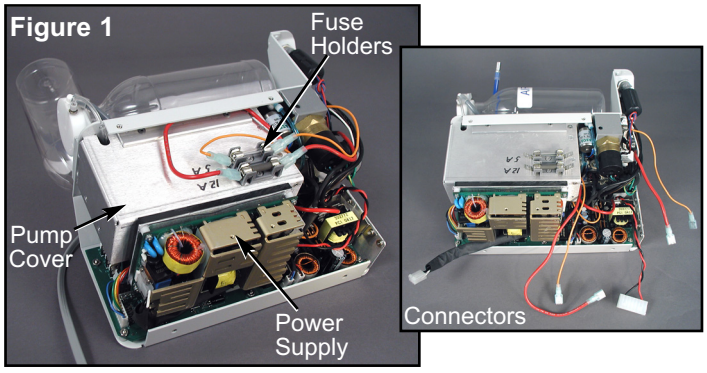
Stand the unit upright, into its operating position. Remove the water bottle. Go to the rear of the case and remove the two upper screws with a #2 Phillips head screwdriver. Go to the top of the unit and remove the two screws while supporting the chassis with your hand. Remove the chassis from the case.

Reassemble the chassis in the reverse order. Check the O-rings on the screws to ensure they are not damaged. If the O-rings are damaged, replace with new screws or RTV screws in place.

POWER SUPPLY - Fig. 1

Remove the connectors to the power supply board on the pump cover. Remove the three flat head screws from the front of the chassis cover with a #2 Phillips head screwdriver. Remove the pump cover/power supply subassembly from the chassis. With the subassembly removed, disassemble the power supply from the pump cover by removing the four nuts and lockwashers from the four corners of the power supply with a 3/16-inch wrench.

Reassemble power supply in the reverse order. When replacing the pump cover on the chassis, take care that the wires and tubes are not pinched by the chassis, and that the wires from the motor and solenoid are in the appropriate slot in the rear of the pump cover.



COMPRESSOR PUMP - Fig. 2

Remove pump cover as previously described (refer to “Power Supply” disassembly procedure above). Remove tubes from the air filter and three-way solenoid at the components. Remove air supply bottle and remove the two screws to the pump from the bottom of the chassis with a 3/32-inch Allen wrench. Remove connector from power board.

Reassemble pump in the reverse order.

THREE-WAY SOLENOID - Fig. 2

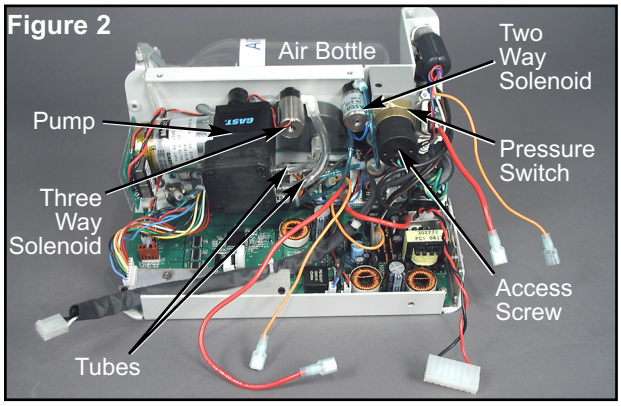
Remove pump cover as previously described (refer to “Power Supply” disassembly procedure above). Disconnect tube from pump to the valve at the valve. Remove screws from the pump and move the pump forward. Remove tube to valve output at the valve. Disconnect wire from the power board and remove the two screws and washers from the valve with a 1/16-inch Allen wrench.

Reassemble solenoid in the reverse order.

TWO-WAY SOLENOID - Fig. 2

Remove pump cover as previously described under “Power Supply” disassembly procedure. Remove screws from the pump and suspend the pump from the back of the chassis. Remove the two screws and washers to the valve from the bottom of the chassis with a 1/16-inch Allen wrench. Clip the cable ties on the wiring harness on the chassis at the bottom of the power board. Disconnect the connector with the two blue wires and remove the tubes from the valve.

Reassemble solenoid in the reverse order and re-tie cables with cable ties.



PRESSURE SWITCH - Fig. 2

Remove pump cover as previously described under “Power Supply” disassembly procedure. Disassemble the pump as described above under “Two-Way Solenoid”. Clip the cable ties on the wire harness on the chassis at the bottom of the power board. Remove the vehicle receptacle with a 1/4-inch wrench to access the nuts and washers on the pressure sensor bracket. Remove the nuts to the bracket with a 1/4-inch wrench. Disconnect the tube to the pressure sensor. Remove the pressure sensor locknut with a 7/8-inch wrench. Remove 2-pin connector with the black and green wires from the power board.

Reassemble sensor in the reverse order.

To set pressure on the pressure sensor, remove the rear access screw with a 1/8-inch Allen wrench to expose the adjustment setscrew within the sensor. Adjust the sensor by turning the setscrew with a 1/8-inch Allen wrench until the pressure reads approximately 22 PSI on the gauge (with chassis power turned on). Turning the setscrew clockwise increases the pressure setting; counterclockwise decreases the pressure setting.

BATTERY RECEPTACLE - Fig. 3

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Remove the nuts and washers with a 1/4-inch socket. Clip the wire ties on the cables coming from the connector. Disconnect the terminals from the battery on/off switch and unplug the 4-pin connector from the power board.

Reassemble receptacle in the reverse order.

VEHICLE BATTERY RECEPTACLE - Fig. 3

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Remove the nuts and washers with a 1/4-inch wrench. Clip the cable ties and remove the terminals to the battery switch and the 2-pin connector to the power board.

Reassemble receptacle in the reverse order.

POWER CORD RECEPTACLE - Fig. 3

Remove the pump cover and pump as previously described under "Power Supply" and "Compressor Pump" disassembly procedures. Clip the cable ties on the wire harness at the bottom of the power board.

Remove all nuts on the ground stud with a 5/16-inch wrench. (The ground wire from the receptacle is the bottom wire.) Remove the two flat-head screws in the front of the receptacle with a #2 Phillips screwdriver. Remove the terminals from the power on/off switch and remove assembly from the chassis.

Reassemble receptacle in the reverse order.

POWER ON/OFF SWITCH - Fig. 3

Remove the two flat head screws from the power receptacle and pull the receptacle forward. Remove the terminals from the power switch and push the switch to the front of the chassis.

Reassemble switch in the reverse order.

BATTERY POWER SWITCH - Fig. 3

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Disconnect the terminals going to the switch and push the switch forward.

Reassemble switch in the reverse order.

FOOT SWITCH RECEPTACLE - Fig. 3

Remove the two screws holding the power cord receptacle and pull the receptacle forward. Push the power switch forward. Remove the pump cover as previously described under "Power Supply" disassembly procedure and loosen the pump to gain access to the ground stud. Remove the top ground nut and clip the wire ties on the cable harness. Remove the switch with a 3/4-inch wrench.

Reassemble receptacle in the reverse order.

MOTOR RECEPTACLE - Fig. 3

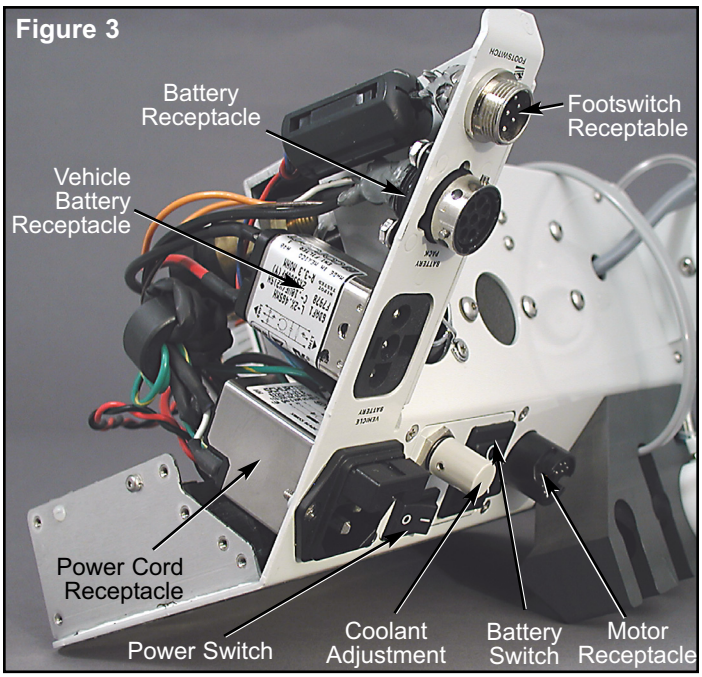
Remove the pump cover as previously described under "Power Supply" disassembly procedure. Remove the screws holding the pump to gain access to the ground stud. Remove the top nut on the ground stud. Disconnect the 8-pin connector at the top of the power board. Remove the four nuts and washers with a 1/4-inch socket.

Reassemble receptacle in the reverse order. NOTE: If replacing old receptacle, remove ferrite block and reinstall onto new receptacle.

NEEDLE VALVE - Fig. 4

Remove pump cover as previously described under "Power Supply" disassembly procedure. Remove screws from the three-way and two-way valves. Remove the screws from the filter holder and move out of the way to access the needle valve. Remove the tubing from the needle valve. Remove the knob from the front of the needle valve with a 1/16" Allen wrench. Remove the needle valve with two 9/16-inch wrenches. NOTE: It is recommended that a thin-walled wrench be used on the inside nut.

Reassemble the needle valve in the reverse order.



CHECK VALVE - Fig. 4

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Remove the screws from the pump and swing the pump out of the way. Disconnect the tubes to the check valve.

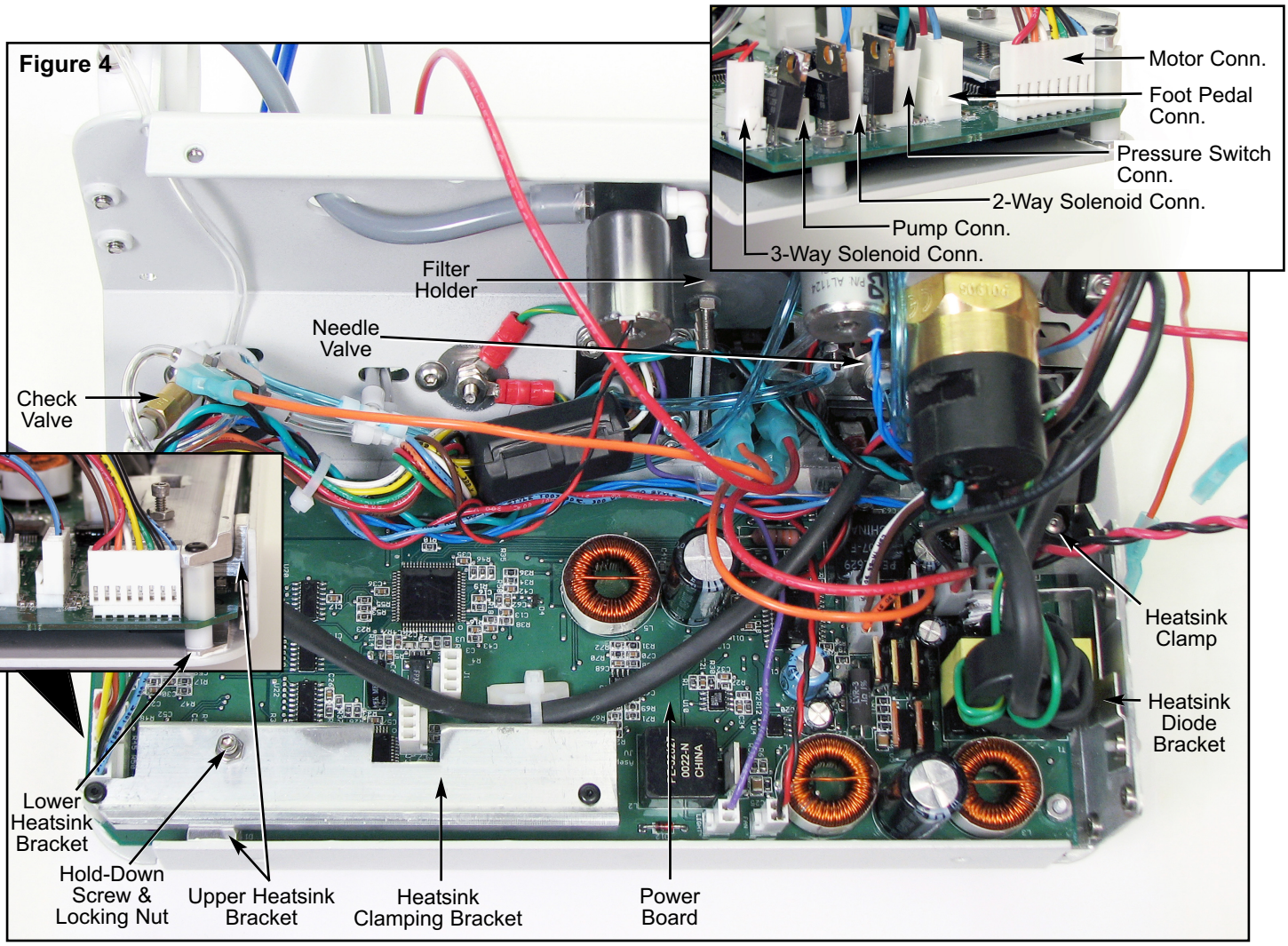
Reassemble valve in the reverse order. NOTE: the flow arrow on the valve must be pointing toward the water bottle cap.

POWER BOARD - Fig. 4

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Remove the two screws that hold the power cord receptacle and pull the receptacle forward. Use a 3/32-inch Allen wrench to remove the screw that attaches the two insulators and the diode heatsink bracket. Remove bracket. Use a 1/16-inch Allen wrench to remove the mounting screw for the trans heatsink bracket, then remove bracket. Remove the heatsink clamp mounting screw and standoff with a 1/16-inch Allen wrench. Remove heatsink clamp. Remove the two mounting screws for the heatsink clamping bracket with a 1/16-inch Allen wrench, then remove bracket. (NOTE: It isn't necessary to remove the hold-down screw and locking nut mounted on the top of the heatsink clamping bracket.) Remove the upper heatsink bracket located on top of the power board IC chip. Remove the two nylon standoffs from the power board. Remove all wire and cable connectors to the power board. Remove the remaining two nuts and washers with a 1/4-inch socket. Lift the board off the studs to expose the ribbon cable on the back side of the power board. Remove the thermo pad and lower heat sink bracket from the bottom side of the power board. Remove the ribbon cable at the power board. NOTE: The cable connector has been sealed at the factory with RTV - remove the RTV from cable.

To replace power board with a new board, set the new board 90° to mounting position in the unit and insert the ribbon cable into the socket. The socket requires that both sides of the connector lock be pushed closed at the same time. Ensure that the cable and connector are properly aligned and seated to each other. It is recommended to seal the ribbon cable to the connector with RTV and allow to dry, to prevent condensation shorts on the connector. NOTE: If RTV is not available, use a piece of electrical tape to seal the connector and prevent movement of the cable when reassembling. Realign the power board to its proper mounting position and install back in the chassis.

Reassemble power board in the reverse order. Apply thermo compound to all heatsinks and heatsink brackets per instructions provided on Assembly Drawing 420541, sheets 13 thru 19. Ensure there is no continuity between the upper and lower heatsinks.

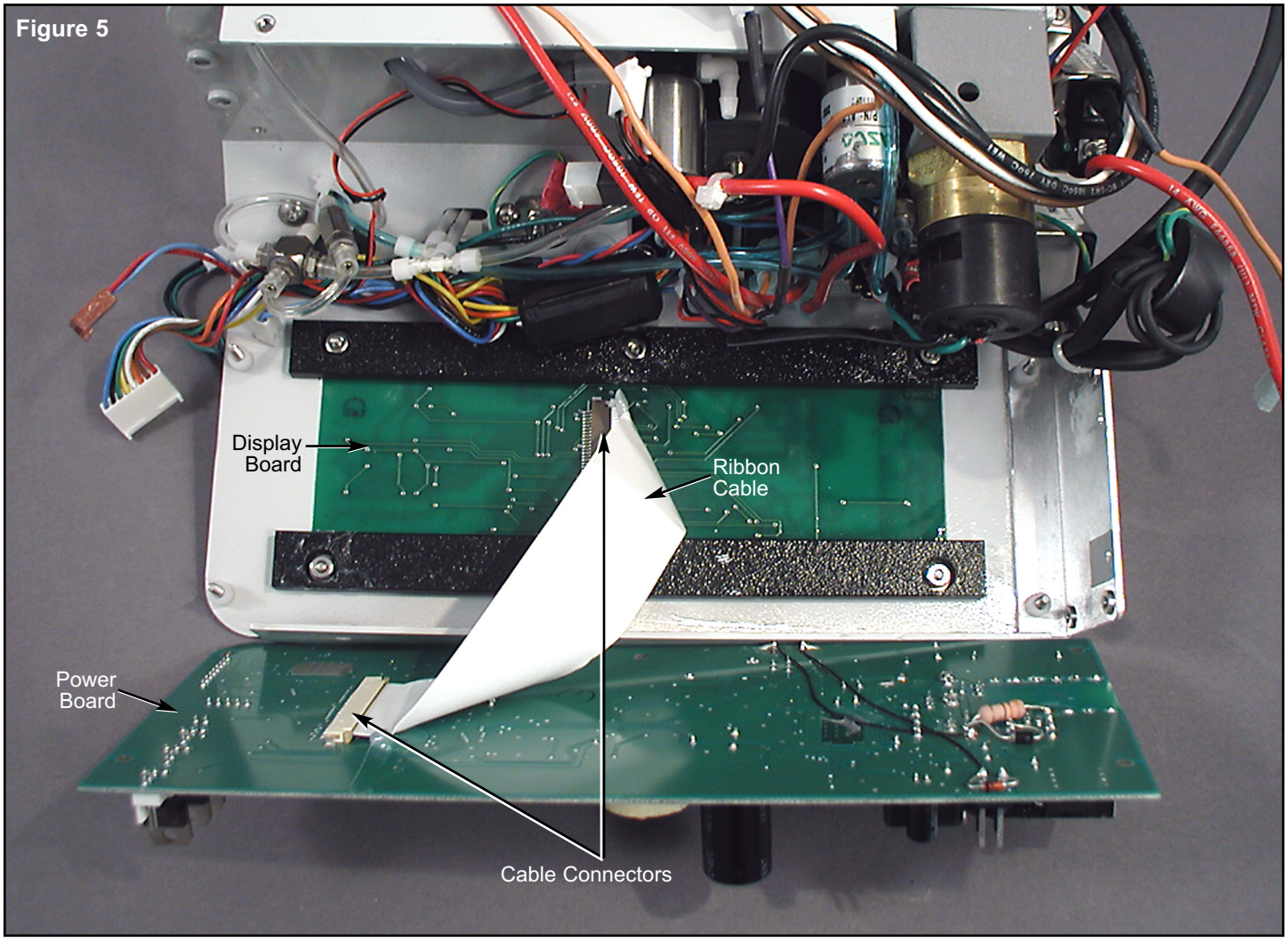


DISPLAY BOARD - Fig. 5

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Remove all the components to the power board as previously described under "Power Board", with the exception of the ribbon cable. Remove the ribbon cable from the display board and clean the RTV from the cable. Remove the two clamping bars with a 1/4-inch thin-walled socket. Remove the board from the chassis. To replace the board, ensure that the insulator is still in the pocket of the chassis and install the board using the two clamping bars. Insert the ribbon cable into the display board and ensure that the cable is oriented and seated properly in the connector. The socket requires that both sides of the connector be pushed closed at the same time. It is recommended that the ribbon cable be sealed to the connector with RTV and allowed to dry, to prevent condensation from shorting out the connector. NOTE: If RTV is not available, use a piece of electrical tape to seal the connector and prevent cable movement when reassembling the power board.

Finish reassembling the power board in the reverse order.

Figure 5



OVERLAY

The chassis does not have to be removed to replace the overlay. Peel a corner of the overlay away from the chassis console with an exacto knife or sharp-edged tool and pull the overlay off the console.

To replace the overlay, align the new overlay with the console LEDs and press into position using hand pressure. NOTE: To help realign the overlay into position, it is recommended that a battery pack be connected to the console and all the LEDs turned on.

FAN & FAN GUARD - Fig. 16

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Using a #2 Phillips head screwdriver and 1/4-inch wrench, remove the four screws which hold the fan guard and fan to the chassis.

Reassemble fan and guard in the reverse order.

FILTER HOLDER - Fig. 4

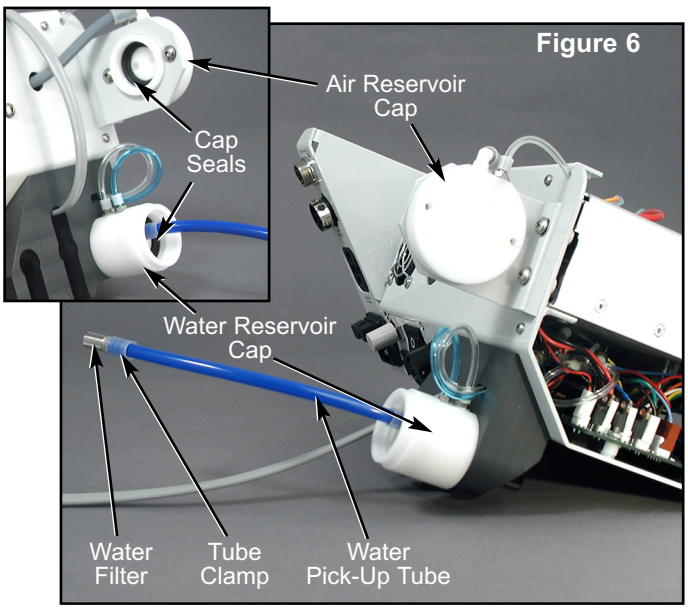
Remove the pump cover as previously described under "Power Supply" disassembly procedure. Disconnect the connector from the Power Board at 'J13'. Remove the tube from the pump to the filter holder. Remove the air bottle to access the filter holder mounting screws and washers. Remove the #6 washers and screws with a 5/64-inch Allen wrench. Clean or replace existing filter if dirty.

Reassemble holder in the reverse order.

AIR RESERVOIR CAP - Fig.6

Remove the air bottle. Remove the two flat head screws with a 1/8-inch Allen wrench. Pull down the cap and remove the two tubes coming from the chassis. Remove the seal and fitting and replace in the new cap.

Reassemble cap in the reverse order.



WATER RESERVOIR CAP - Fig. 6

Remove the pump cover as previously described under "Power Supply" disassembly procedure. Disconnect the pressure gauge tubing at the 4-way connector. Remove the pressure gauge. Disconnect the two tubes in the rear of the cap. Remove the two screws holding the cap with a 1/8-inch Allen wrench. Remove the seal and fittings from the old cap and install onto new cap.

Reassemble cap in the reverse order.

WATER PICK-UP TUBE - Fig. 6

Remove the water bottle. Gently pry and slide tube clamps away from fittings at the filter and the cap. Remove tube. Replace tube with existing filter and clamps installed.

WATER FILTER - Fig. 6

Remove the water bottle. Gently pry and slide tube clamps away from the filter. Remove the filter and clean or replace if clogged. Use existing fitting when installing new filter.

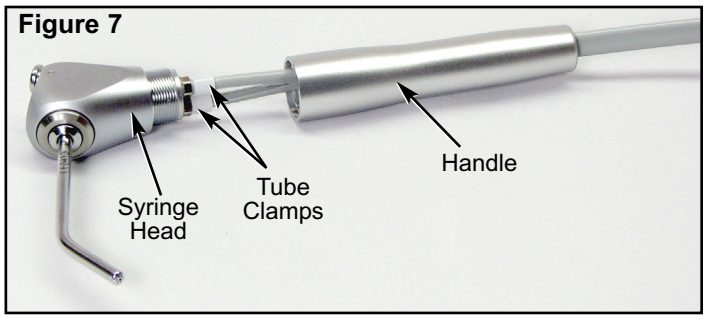
AIR & WATER SEALS - Fig.6

Remove the appropriate bottle. Lift out the seal from the cap and replace with a new seal. Ensure that seal is properly seated in the cap.

SYRINGE - Fig. 7

Unscrew the handle from the syringe head. Remove the tubes from the syringe head. Remove the tube clamps from the tube and remove the handle.

Reassemble syringe by placing the tube through the handle and placing the tube clamps on the tube. Place the tube with the line on the inner side of the tube to the water side. Attach the handle to the syringe head and test for air, water and spray.



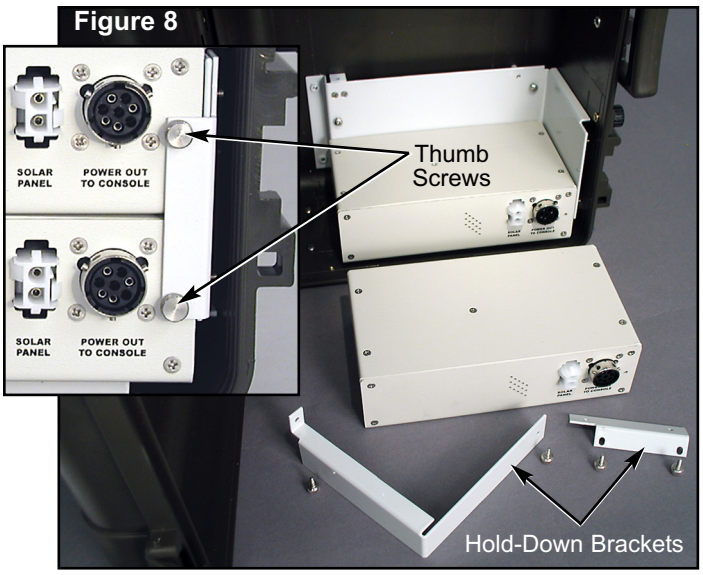
DISASSEMBLY - Continued

BATTERY PACK DISASSEMBLY

• BATTERY PACK - Fig. 8

Remove the four thumbscrews from the hold-down brackets. Remove the hold-down brackets from the battery cage. Slide the battery pack to the left and out to remove the pack from the battery cage.

Figure 8

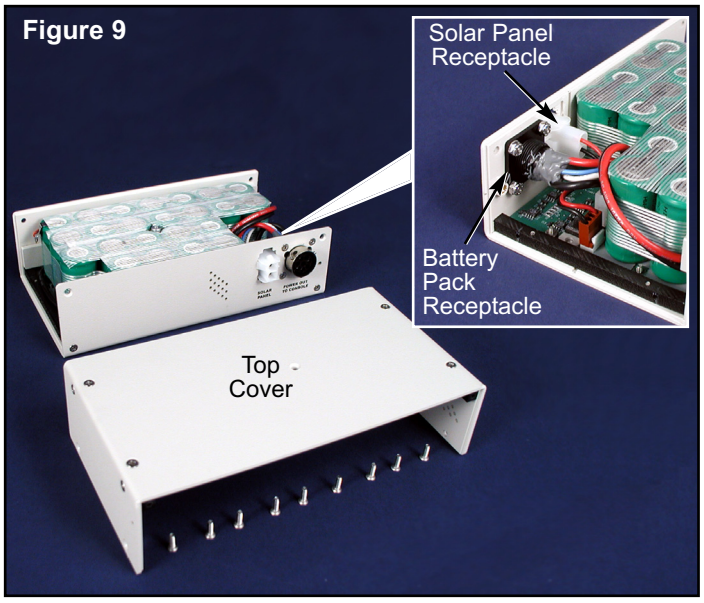


•BATTERY RECEPTACLE - Fig. 9

Using a #2 Phillips screwdriver, remove the top cover of the battery pack by removing the single screw in the center of the top cover, the four upper corner screws in the front and back sides of the pack, and the four bottom screws on the left and right sides of the pack. Pull the top from the battery pack. Disconnect the connector that leads from the battery pack receptacle to the battery pack board. Remove the receptacle with a #2 Phillips head screwdriver and a 1/4-inch wrench.

Reassemble receptacle in the reverse order.

Figure 9



• SOLAR PANEL RECEPTACLE - Fig.9

Remove top cover as previously described under “Battery Receptacle” disassembly procedure. Remove battery pack connector from the battery pack board. If solar panel receptacle needs to be replaced, cut locking clips off the sides of the receptacle and push receptacle to the interior of the chassis. Replace with new receptacle.

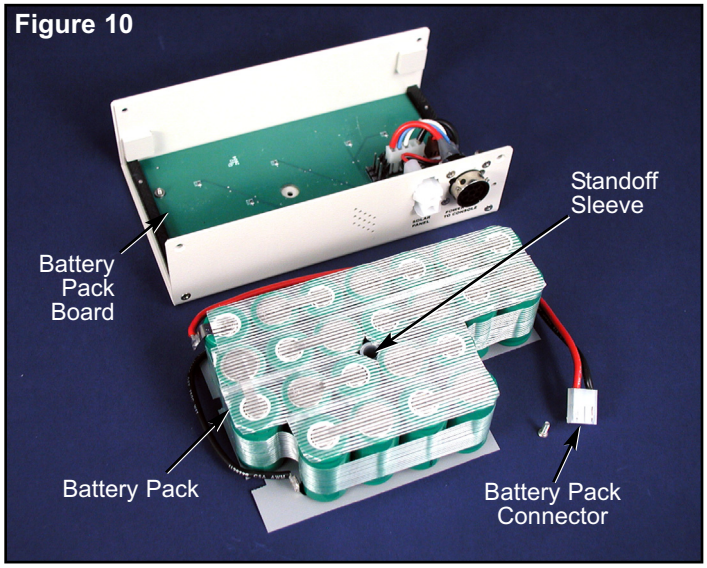
Reassemble receptacle in the reverse order.

• BATTERY PACK BOARD - Fig. 10

Remove top cover as previously described under “Battery Receptacle” disassembly procedure. Remove center screw in the bottom of the case with a #2 Phillips screwdriver and remove center standoff. Disconnect all connectors to the battery board. Remove the battery pack from the chassis. If battery pack is to be discarded, remove and save standoff sleeve for use later. Remove four screws holding the board to the chassis. Lift battery pack up and to the side to clear the side bar and keyhole slot bosses.

Reassemble board in the reverse order. <u>NOTE:</u> Ensure that sleeve has been placed on the center post of the standoff.

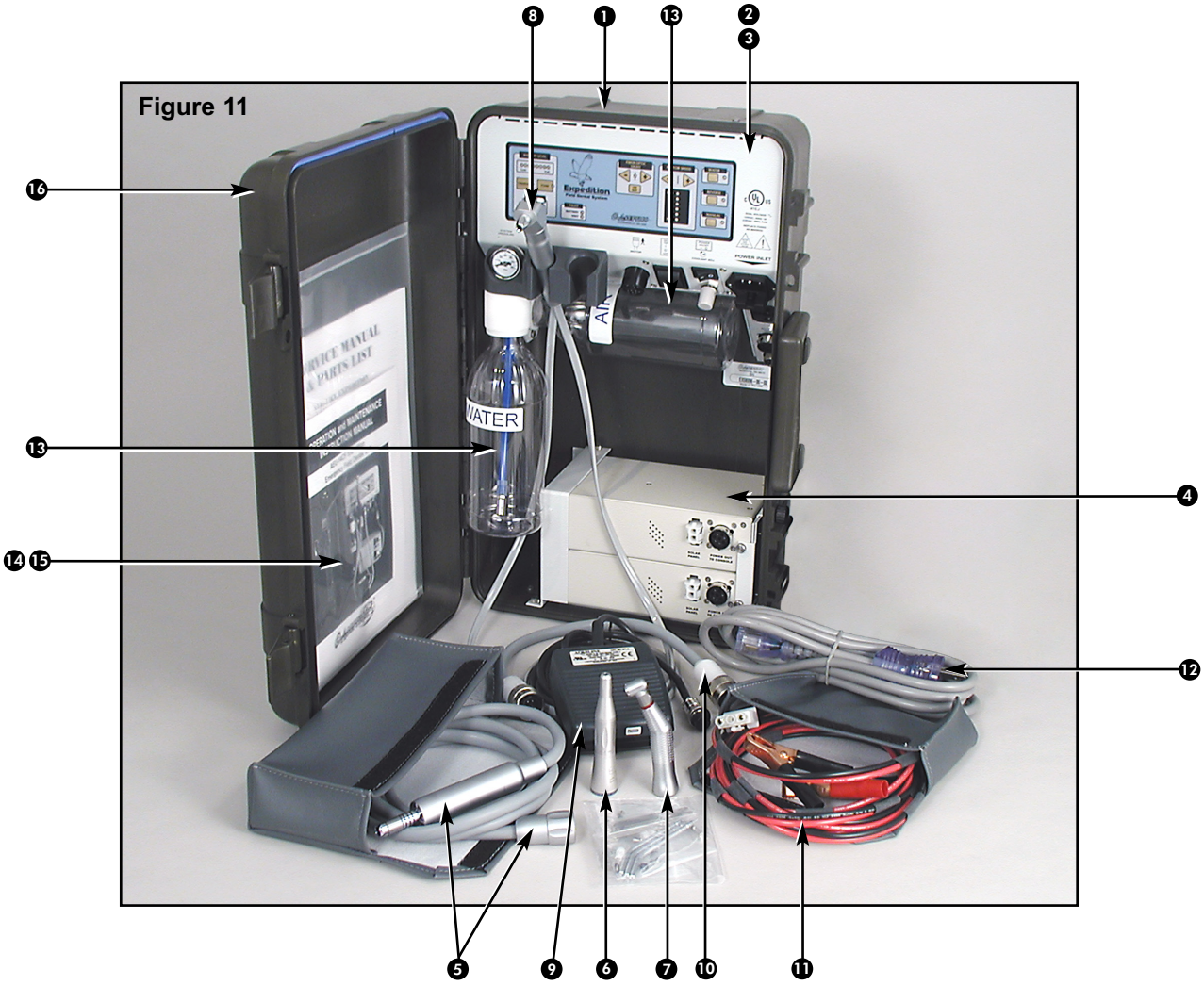
Figure 10



PARTS LIST - Figure 11 - System Contents

ITEM		PART NO	QTY
1	Final Assy, AEU-14 Expedition	120295	1
2	Chassis, AEU-14 Base Cmpl	461176-08	1
3	M/S Stnls PhdPhl 6-32 x 3/8 Self Sealing	510604	4
4	Chassis, AEU-14 Cage Battr Cmpl	461175-08	1
5	Motor/Cable Assy w/Light & Water	AE-200-30	1
6	HPCE 1:1 Strt Low Speed Doriot	AHP-101	1
7	HPCE 1:5 Contra Increaser w/Fiberoptics w/water	AHP-72MBFO-XL	1
8	Syringe, 3-Way Air Water	TA-90D	1

ITEM		PART NO	QTY
9	Footswitch, On/Off 8-Pin	AE-7P	1
10	Cable Assy, Battery Pack AEU-14	330394	1
11	Cable Battery Assy AEU-14	875043	1
12	Linecord Remote US 10Ft Gry	840001	1
13	Bottle, 16oz. Pet	730427	2
14	Manual, AEU-14CF Operation	420382	2
15	Manual, AEU-14CF Service	420417	1
16	Case, AEU-14 Expedition	410157	1



PARTS LIST - Figure 12 - Chassis Front

ITEM		PART NO	QTY
1	Label, Mylar AEU-425 AIR	420299	1
2	Bottle, 16oz Pet	730427	2
3	Lid, Ported For NWS-8 Bottle	730472	2
4	C/S BtnSoc Stnls 10-32 x 3/4	510423	2
5	Guage, 0-60PSI 1/8Mpt 1" Face	730304	1
6	Gasket, Nylon #10	730074	1
7	Ftn Barb 10-32 x 1/16 Plated	730062	1
8	Holder, AEU-14 Motor/Syringe	461193	1
9	C/S BtnSoc Stnls 8-32 x 3/8	510404	2
10	Washer, Int Star S/S #8	510420	2
11	Overlay, AEU-14	420370	1
12	Wire Assy, Motor Conn	875060	1
13	M/S Stnls FlaPhl 4-40x3/8	510112	6
14	Washer, Flat Stnls #4	510192	4
15	Nut, Nyloc 4-40 Stnls Hex	510394	4
16	Switch, Rocker DC On/Off	830120	1

ITEM		PART NO	QTY
17	Switch, Rocker Dpst Blk/Wht	830018	2
18	Power Inlet w/Fuse Holder 2Amp	840081	1
19	Fuse, 5x20mm Slo-Blo 1.25A	830126	2
20	Conn DC Filtr 1-20 Amps 80 VDC with DC Inlet Conn	860156	1
21	Nut, Hex 4-40 Stnls	510434	2
22	Washer, Split Stnls #4	510433	2
23	Conn Recpt Wall-Mntg 8Pin	860165	1
24	Wire Set AEU-14 Foot Pedal Con	875042	1
25	Knob Gry Plastic 1/4D Style II	850012	1
26	Valve, Needle Control w/o Knob	730066	1
27	Guard, Fan	540011	1
28	Holder AEU-14 Filter	461180	1
29	Filter AEU-425 Air Inlet	461028	1
30	M/S Stnls PhdPhl 6-32 x 3/8	510406	2
31	Washer, Int Star S/S #6	510419	2
32	M/S FlaPhl Stnls 4-40 x 1-1/4	510621	1

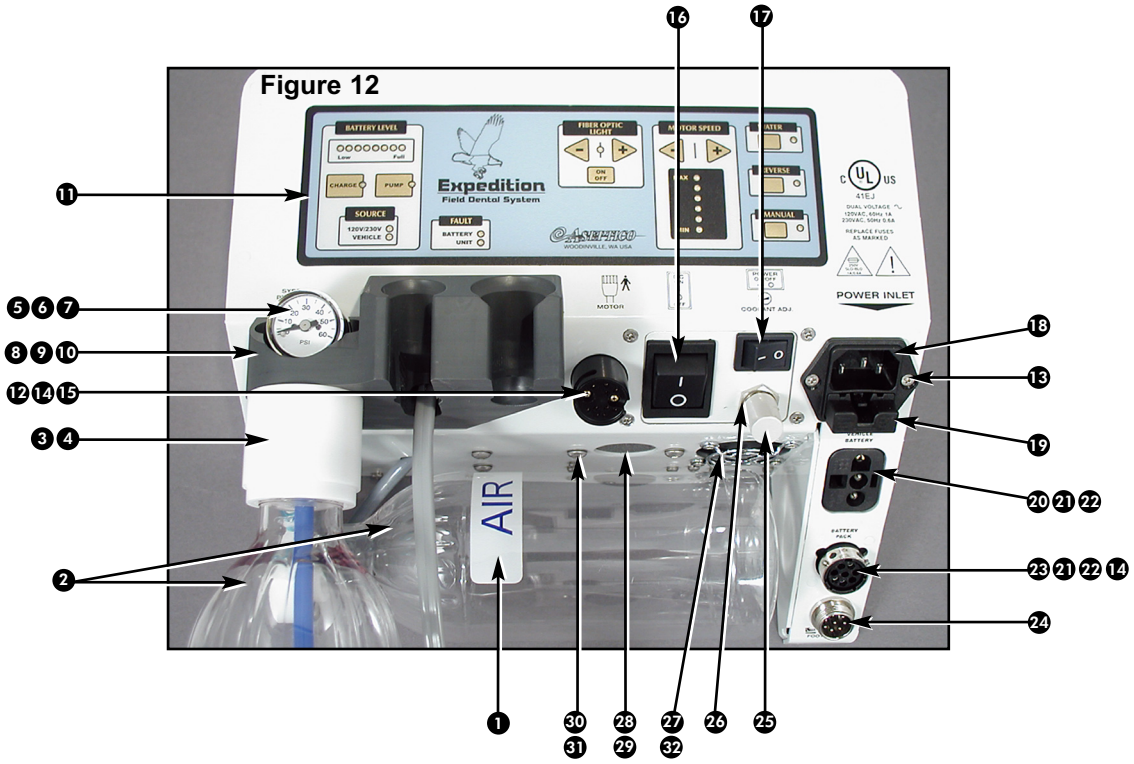


Figure 12

PARTS LIST - Figure 13 - Chassis Rear

ITEM		PART NO	QTY
1	Cover, Pump AEU-14CF	461177	1
2	Screw, Stnls Flaphl 4-40x3/8	510112	1
3	Fuse, 5 Amp 250V	830110	1
4	Fuse, 12 Amp 250V	830084	1
5	Power Supply, 48VDC 2.3A Medica Grade	730525	1

ITEM		PART NO	QTY
6	Nut, Hex 4-40 Sml Ptn Pltd	510005	4
7	Spacer, Nyl 1/4Rndx.210Lx.14ID	510022	9
8	Insulator, AEU-14 Power Board	461199	1
9	Shield, Power Board AEU-14CF	461357	1
10	Bottle, 16oz. Pet	730427	2
11	Fuse Block, 12 Pole	830064	0.167

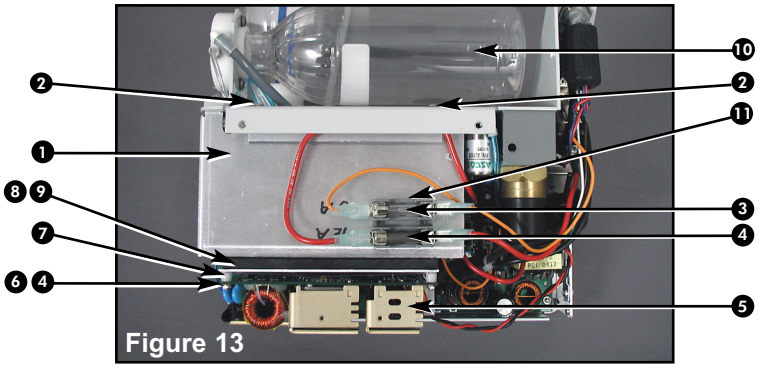
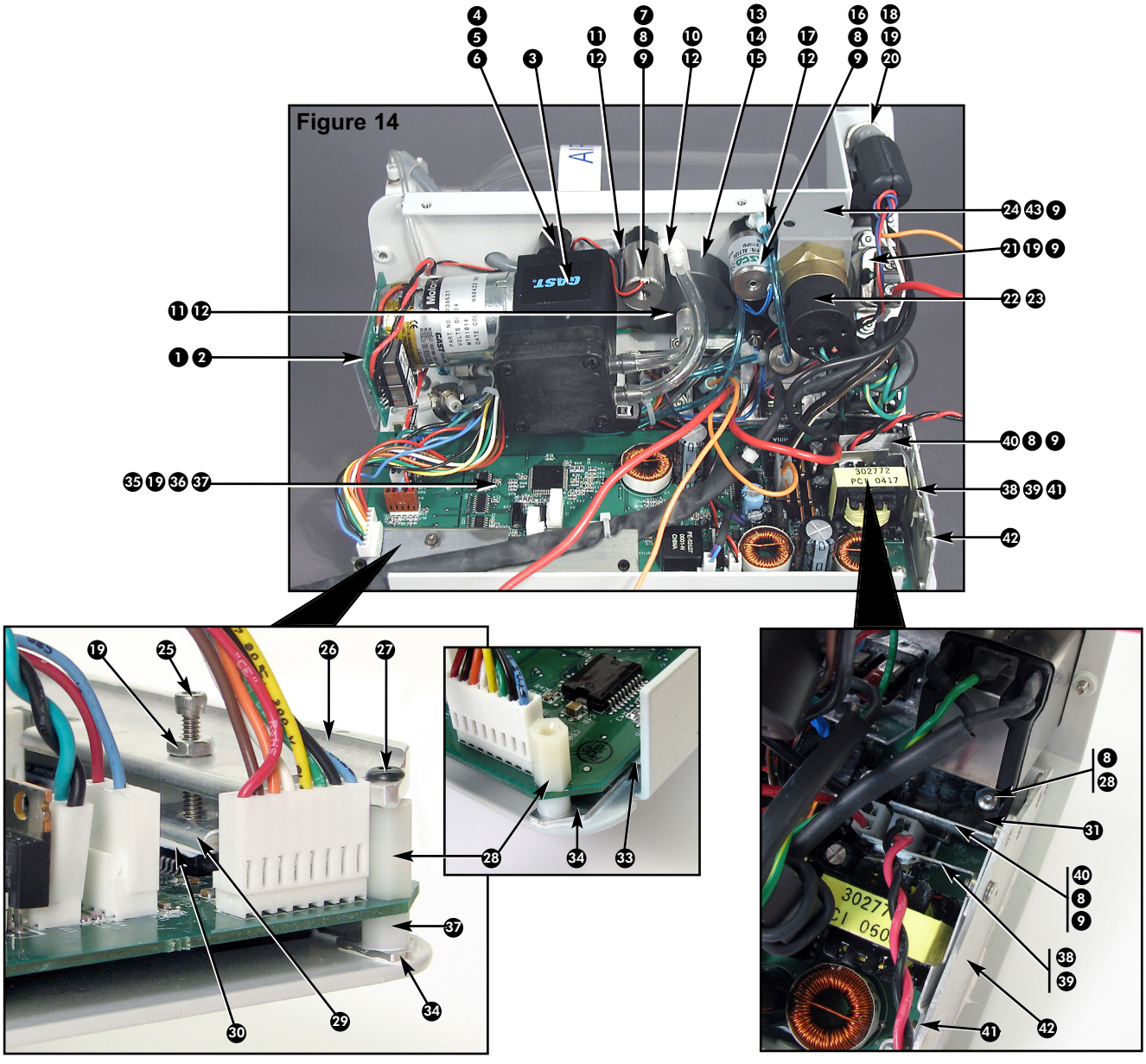


Figure 13

PARTS LIST - Figure 14 - Chassis Internals

ITEM		PART NO	QTY
1	PCB Assy, AEU-14 Pump Motor	330383	1
2	Insulator, AEU-14 Pump Motor	461288	1
3	Pump, Oiless Diaphragm 24VDC .4A	730490	1
4	Motor Brkt Mount 9/16x1/2	730413	2
5	C/S Btnsoc Stnls 8-32 x 3/8	510404	4
6	Washer, Int Star S/S #8	510420	6
7	Valve, 3 Way Solenoid 24V	730474	1
8	C/S Btnsoc Stnls 4-40x1/4	510016	2
9	Washer, Split Stnls #4	510433	2
10	Ftn Barb 10-32 x 1/8 90D Elbow	730023	1
11	Ftn Barb 10-32 x 1/8 Brt/Nkl	730073	1
12	Gasket, Nylon #10	730074	2
13	Holder, AEU-14 Filter	461180	1
14	M/S Stnls Phdphl 6-32 x 3/8	510406	2
15	Washer, Int Star S/S #6	510419	2
16	Valve, 2 Way Normally Closed	730469	1
17	Ftn Elbow 90 10-32 x 1/16 Barb White Nylon	730011	4
18	Conn Recpt Wall-Mntg 8Pin	860165	1
19	Nut, Hex 4-40 Stnls	510434	34
20	Washer, Flat Stnls #4	510192	41
21	Conn DC Filtr 1-20 Amps 80 VDC with DC Inlet Conn	860156	1

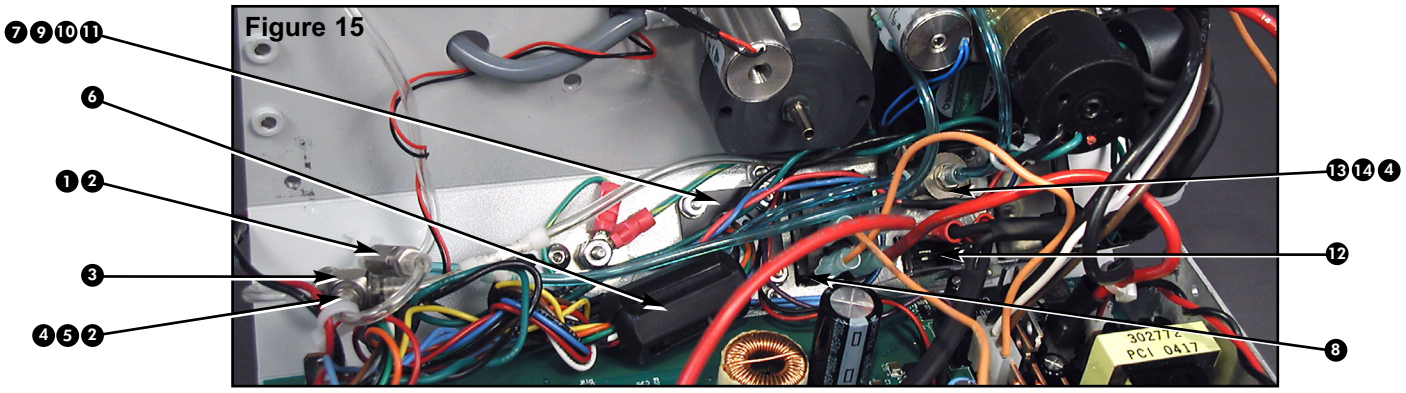
ITEM		PART NO	QTY
22	Switch Pressure 10-100 Modifid AEU-425	460905	1
23	Nut, Lock 1/4 NPSL	730430	1
24	Brkt AEU-14 Pressure Switch	461282	1
25	C/S SocHd Stnls 4-40 x 5/8	510610	1
26	Bracket Heat Sink Clamping AEU-14CF	461650	1
27	C/S BtnSoc Blk 4-40 X 3/8	510031	2
28	Standoff Nylon 4-40 X 1/2 L X 1/4 Hex	510547	3
29	Bracket Heat Sink Upper AEU-14CF	461651	1
30	Thermo Heatsink Compound	490007	1
31	Clamp AEU-14 Heatsink	461335	1
32	Tie Wrap Mount 3/4 X 3/4 w/Adh Back	510206	1
33	Pad Driver Chip AEU-14CF	461649	1
34	Bracket Heat Sink Lower AEU-14CF	461652	1
35	PCB Assy AEU-14 Power	330364	1
36	Washer, Flat Nylon .120IDx.250ODx.032T	510127	28
37	Spacer, Nyl 1/4Rndx.210Lx.14ID	510022	9
38	Brkt AEU-14CF Heat Sink Diode	461359	1
39	M/S RndSlt Nylon 4-40 x 1/4	510620	1
40	Brkt AEU-14 Trans Heatsink	461336	1
41	Insulator, Mica to-220	850010	1
42	Brkt AEU-14 Shield Left	461280	1
43	M/S Phpl Stnls #4-40 x 3/8	510671	2



PARTS LIST - Figure 15 - Chassis Internals

ITEM		PART NO	QTY
1	Valve, Check Anti Retraction	730012	1
2	Sleeve Clamp Ftn 1/8ID Clear	730015	6
3	Ftn 10-32 Cross 4Port Fem	730141	1
4	Ftn Barb 10-32 x 1/16 Plated	730062	4
5	Gasket, Nylon #10	730074	4
6	Ferrite EMI Suppression Core	870267	2
7	Wire Assy, Motor Conn	875060	1

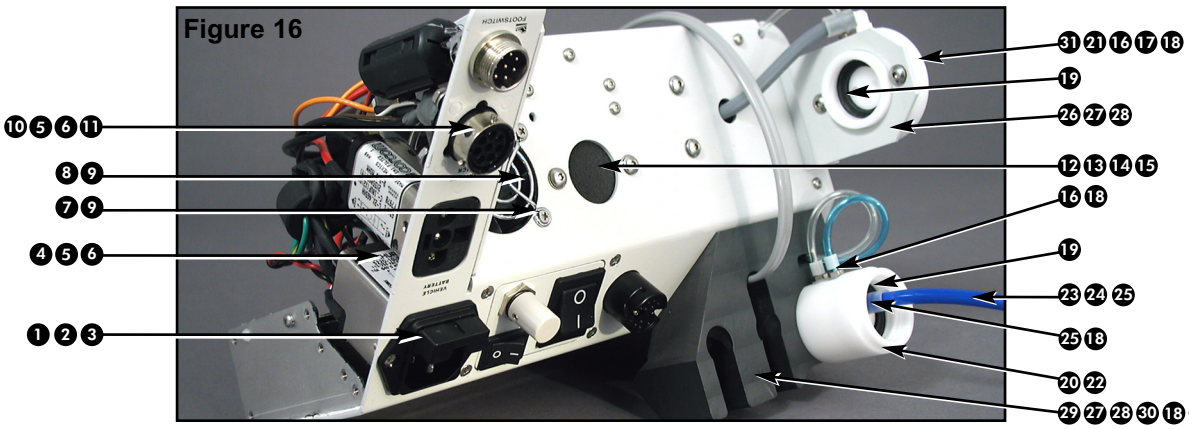
ITEM		PART NO	QTY
8	Switch, Rocker DC On/Off	830120	1
9	Washer, Split Stnls #4	510433	4
10	Washer, Flat Stnls #4	510192	4
11	Nut, Hex Stnls 4-40	510434	4
12	Switch, Rocker Power On/Off	830018	1
13	Knob, Gry Plastic 1/4ID Style II	850012	1
14	Valve, Needle Control w/o Knob	730066	1



PARTS LIST - Figure 16 - Chassis Front

ITEM		PART NO	QTY
1	Power Inlet w/Fuse Holder 2Amp 2 Pole Line Filtered	840081	1
2	Fuse 5x20mm Slo-Blo 1.25A	830126	2
3	M/S Stnls FlaPhl 4-40 x 3/8	510112	2
4	Conn DC Filtr 1-20 Amps 80 VDC	860156	1
5	Nut, Hex 4-40 Stnls	510434	6
6	Washer, Split Stnls #4	510433	6
7	Guard, Fan	540011	1
8	M/S FlaPhl Stnls 4-40 x 1-1/4	510621	4
9	Fan, 12 VDC 70mA 8.0 CFM	540010	1
10	Conn Recpt Wall-Mntg 8Pin	860165	1
11	Washer, Flat Stnls #4	510192	4
12	Holder AEU-14 Filter	461180	1
13	Filter, AEU-425 Air Inlet	461028	1
14	M/S Stnls Phdphl 6-32 x 3/8	510406	2
15	Washer, Int Star S/S #6	510419	2

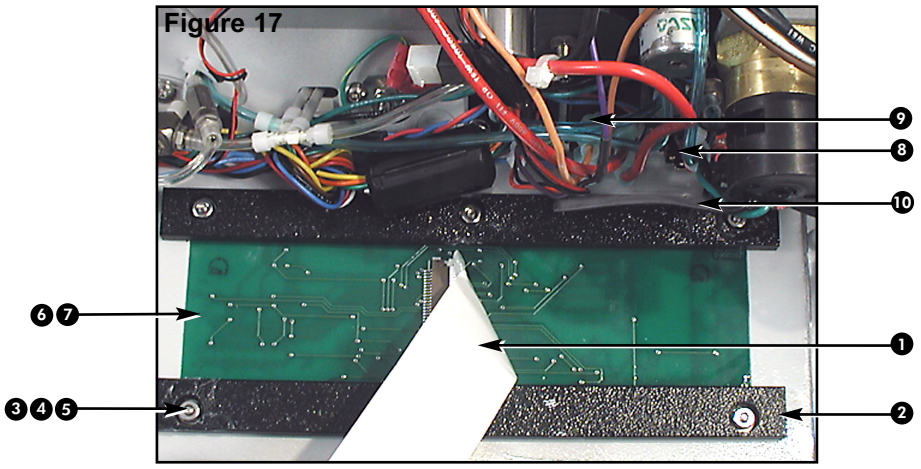
ITEM		PART NO	QTY
16	Ftn Barb 10-32 x 1/16 Plated	730062	1
17	Ftn Barb 10x32 x 1/8 90D Elbow	730023	1
18	Gasket, Nylon #10	730074	4
19	Gasket For NWS-8 Bottle Lid	730473	2
20	Cap, Water Bottle AEU-14	461523	1
21	C/S FlaSoc Stnls 10-32x1/2	510476	2
22	C/S BtnSoc Stnls 10-32 x 3/4	510423	2
23	Tubing, Poly 1/4OD Blu	AA-95B	1
24	Filter 10-32 Thread Stainless	730326	1
25	Ftn Barb 10-32 x 1/8 Brt/Nkl	730073	2
26	Brkt AEU-14CF Cap Cmpl	461179-08	1
27	C/S BtnSoc Stnls 8-32 x 3/8	510404	4
28	Washer, Int Star S/S #8	510420	4
29	Holder AEU-14 Motor/Syringe	461193	1
30	Guage 0-60PSI 1/8Mpt 1" Face	730304	1
31	Cap, Air Bottle AEU-14	461458	1



PARTS LIST - Figure 17 - Chassis Internals

ITEM		PART NO	QTY
1	Cable Jumper 30 Pin 6Inch 1mm	870271	1
2	Clamp, AEU-14 Display	461283	2
3	Nut, Hex 4-40 Stnls	510434	6
4	Washer, Split Stnls #4	510433	6
5	Washer, Flat Stnls #4	510192	6

ITEM		PART NO	QTY
6	PCB Assy AEU-14 Display	330391	1
7	Insulator, AEU-14 Display Board	461284	1
8	Switch, Rocker Power On/Off	830018	1
9	Switch, Rocker DC On/Off	830120	1
10	Insulator, AEU-14 Power Switchs	461293	1



PARTS LIST - Figure 18 - Case & Battery Pack

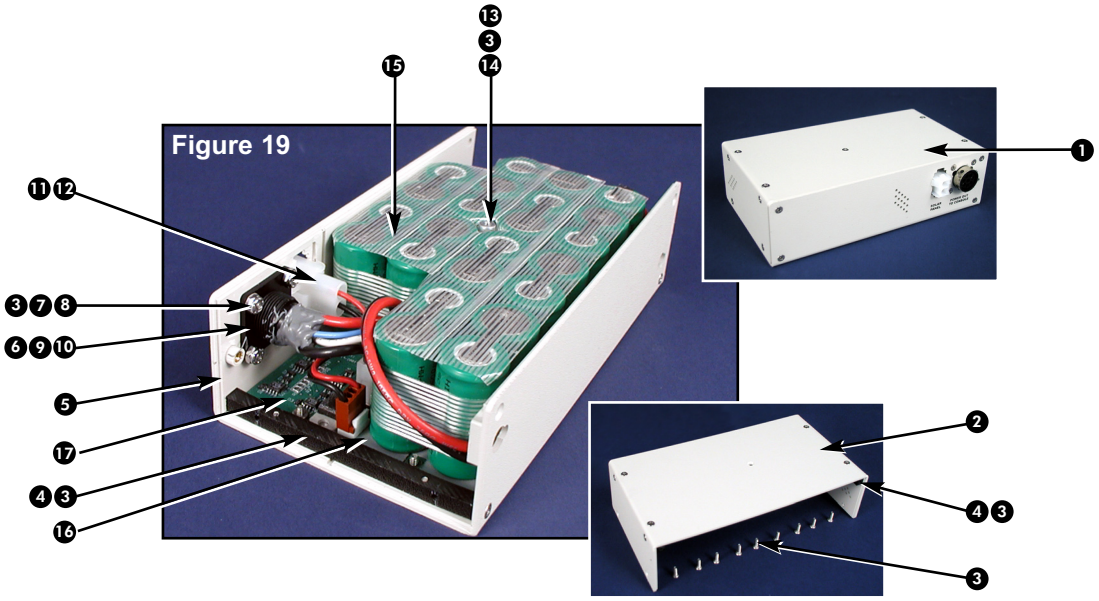
ITEM		PART NO	QTY
1	Case AEU-14 Expedition	410157	1
2	(Not Shown) Foot, Case AEU-14	461290	2
3	M/S Stnls PhdPhl 6-32x3/8 Self Sealing	510561	4
4	(Not Shown) Label AEU-14CF Repackaging	420460	1
5	Chassis AEU-14 Cage Battr Cmpl	461175-08	1
6	M/S Stnls PhdPhl 6-32x3/4 Self Sealing	510589	2

ITEM		PART NO	QTY
7	Brkt AEU-14 Battery Cage Cmpl	461178-08	1
8	Thumbscrew Stnl 4-40x5/16L	510245	4
9	Hold-Down Bracket	461459-08	1
10	Battery Pack Assy AEU-14	330365	2
11	M/S PnHd Ph SS 6-32 x 1/4 Sealing	510605	2

PARTS LIST - Figure 19 - Battery Pack Assembly

ITEM		PART NO	QTY
1	Battery Pack Assy AEU-14	330365	1
2	Chassis AEU-14 Battery Top	461194	1
3	M/S Stnls FlaPhl 4-40x3/8 Flat Undercut	510112	34
4	Bar, AEU-14 Battery Pack Clamping	461188	4
5	Chassis AEU-14 Batry Base Cmpl	461195-08	1
6	Conn Recpt Wall-Mntg 8Pin	860165	1
7	Nut, Nyloc 4-40 Stnls Hex	510394	4
8	Washer, Flat Stnls #4	510192	4
9	Conn Crimp Socket 14AWG	860163	2

ITEM		PART NO	QTY
10	Conn Crimp Socket 22-20AWG	860169	2
11	Conn Hsng 2 Pin In-Line Recept	860114	1
12	Conn Crimp Socket 20-14 AWG	860111	2
13	Standoff AEU-14CF Battery Case	461333	1
14	Tubing Silicone .281IDx.375OD 70 Duro Gray	730489	1
15	Battery Pack AEU-14CF 27.6V 2600mA-h Ni-CD	820042	1
16	Pad, AEU-14CF Battery Heatsink	461334	1
17	PCB Assy AEU-14 Temperature	330392	1



TROUBLESHOOTING GUIDE

PROBLEM	CORRECTION
Chassis does not light when turned on:	Check chassis to power connection. Check that voltage is proper voltage. Check fuse. If blown, replace with 1.25A/250V slo-blo fuse for 120V operation, & 0.6A/250V slo-blo fuse for 230V operation.
Chassis lights when turned on, but handpiece does not turn:	Check motor plug connection. Check foot switch connection. Depress foot switch. Increase RPM. Check that an instrument is properly seated in the handpiece and the collet is closed.
Chassis does not light when 12V/24V power is applied:	Check 12A fuse inside chassis (blue fuse wired to the vehicle battery connector).
Chassis does not light when battery pack is applied:	Check connections at the battery pack, chassis, and cable. Check voltage of the battery pack Check the 5A fuse inside the chassis (amber fuse wired to the battery pack connector).
Motor slowing down or sluggish:	Dirty, under-lubricated handpiece. Handpiece lubricant is running into motor. After lubricating, set handpiece with head down to let excess lubricant drain out.
Pressure fails to stabilize:	Check that air and water bottles are tight. Check line and fittings for air leaks.
Pressure fails to turn off at approximately 20 PSI:	Check for broken cable to pressure switch. Check pressure settings.
Unit fails to build pressure:	Check that bottles are tight. Check wires for breaks to solenoid switch.
Battery fault light on:	Battery not connected, or charging error observed. Allow battery pack to cool to below 35°C for 30 minutes before attempting charge. If battery fault light is on for two consecutive charging attempts, replace battery pack.
Unit fault light on:	Unit operational error observed. Remove all power from unit for 30 minutes before attempting to use the system again. If unit fault light is on during two consecutive attempts to operate the system, return system for repair.
AC / DC Source lights flash On/Off:	Unit operational error. Return system for repair.

SPECIFICATIONS

Size: . . . . . .17.5" x 11.6" x 6.9"
(44.5 cm x 29.5 cm x 17.5 cm)

Volume: . . . . . .0.81 ft³ (0.23 m³)

Weight: . . . . . .27 lbs
(12.25 kg)

Power Source: . . . . . .AC Dual Voltage
120V/230V @ 50Hz/60Hz
12V/24V vehicle battery
27.6V battery pack (x 2)

Water Reservoir Capacity: . . . . . .16 fl. oz. (0.423 liter)

Air Reserve Capacity, Standard: . . .25.8 in³ (423 cc)

Noise Levels . . . . . .64 dBa @ 1 meter (3'4")

Fuses: . . . . . .120V: 1.25A, 250V slo-blo fuse
(Installed at factory)
230V: 0.6A, 250V slo-blo fuse

Fuse Size: . . . . . .5 x 20mm

Duty Cycle for AE-200-30 Motor: . .Intermittent use:
1 minute On /
3 minutes Off

Mains Current Ratings: 120V: 1.25A, 230V: 0.6A

NOTE: The appliance inlet is the mains disconnect means.

Environmental Conditions:
- *Operating Temperature: 2° to 49° C (35° to 120° F)*
- *Transport/Storage Temperature: -20° to 60° C (-4° to 140° F)*
- *Relative Humidity: 5 to 95% non-condensing*
- *Altitude: 0 to 2591 meters (0 to 8,500 feet)*

NOTE: Air pressure instruments are set to 2591 meters (8,500 ft) elevation.

***WARNING:** Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air, or with oxygen or nitrous oxide.*

***CAUTION:** If the integrity of the protective earth ground is in doubt, only use battery pack or vehicle battery power for operation.*

MEDICAL EQUIPMENT WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 2601-1 CAN/CSA C22.2 No. 601.1

- *Type of Protection Against Electric Shock:*
  - *Class I when system is powered by mains power source.*
  - *Class II when system is powered by Vehicle Battery power source.*
  - *Internally Powered Equipment for Battery Pack power source.*
- *Degree of Protection Against Electric Shock: Type B Applied Part*
- *Degree of Protection Against Ingress of Water: Ordinary Equipment*
- *Mode of Operation: Continuous*

This device has been tested and found to comply with the emissions requirements of IEC 60601-1-2:2001-09. These requirements provide reasonable protection against harmful electromagnetic interference in a typical medical installation. However, high levels of radio-frequency (RF) emissions from electrical devices, such as cellular phones, may disrupt the performance of this device. To mitigate disruptive electromagnetic interference, position this device away from RF transmitters and other sources of electromagnetic energy.

SYMBOL DEFINITIONS:

	Type B Equipment
	Attention, consult accompanying documents
	Dangerous Voltage
	Do Not Throw Into Trash
	Alternating current
	Protective earth (ground)
IPX1	Protect Against Dripping Water

WARRANTY

Aseptico warrants this product against defects in material or workmanship for a period of two (2) years, from date of original invoice. Some handpieces are warranted for one year under the same conditions. Other handpieces and expendable components, such as air turbines and light bulbs, are covered by shorter warranty periods, or have no warranty. Aseptico's sole obligation under product warranty is (at its sole option and discretion) to repair or replace any defective component or product in part or whole. Aseptico shall be the sole arbiter of such action.

In the event of alleged defect under warranty, the purchaser is to notify Aseptico's Customer Service Department promptly. Customer Service will provide instructions, usually directing that the product be returned for service. Shipment to Aseptico and the cost thereof is always the responsibility of the purchaser.

Accidental misuse, inappropriate installation, or failure to perform directed maintenance voids the warranty. Deliberately defacing, modifying, or removing the serial number voids the warranty.

Aseptico does not assume, under this warranty, any risks or liabilities arising from the clinical use of its products, whether or not such use involves coincidental utilization of products manufactured by others.

REPAIRS

Aseptico repairs carry a ninety (90) day limited warranty against defects in material and workmanship. This warranty pertains only to the specific repair. Any new and different defect in materials or workmanship will be treated as a new repair. If the product is not covered under warranty, Aseptico offers Repair Services for a fee.

NOTES

For Further Service And/Or Technical Assistance Contact:

P.O. Box 1548 • Woodinville, WA 98072-1548
(800) 426-5913 • (425) 487-3157 • Fax: 425-487-2608
www.aseptico.com • info@aseptico.com

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